UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-39* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☒ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. *12/28/2007* .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's request for reconsideration of the finality of the rejection of the last

Office action (mailed on 7/3/2007) is persuasive during the interview the Applicant had

on 12/26/2007 with Charles Rones and the Examiner and, therefore, the finality of that

action is withdrawn.

2.   Applicant's Amendment filed on 5/1/2007 has been entered with newly added

claims 19-38 and cancelled claims 1-18. In this Office Action, claims 19-39 are

pending.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

4.   Claims 19, 28 and 38 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. Applicant specification does not

properly defined the phrases "training dataset" and it is considered as new matter.

Applicant did not define identifying step in the specification. Therefore Applicant is

claiming a new matter, see for example, claim 19, line 5.

5.   following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
>
> claiming the subject matter which the applicant regards as his invention.

6.   Claims 19, 28 and 38 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. "identifying one or more predetermined feature

types within each image, or a region thereof, of a plurality of images of a training

dataset." Applicant has left several steps before the identification step.

7.   The claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to conform to current U.S. practice. Claim 21 is rejected, because

pronouns are not permitted in the claim. Only what is being referred to by "its" should

be set forth in the claim. Thus, the claimed on page 3, line 2-3 recitation as "geometry

its scale" renders the claim vague and indefinite.

Claim Rejections - 35 USC § 101

8.   35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
>
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
>
> conditions and requirements of this title.

9.   Claims 19-39 are rejected under 35 U.S.C. § 101, because none of the claims

are directed to statutory subject matter. Independent claims 19, 28 and 38 merely

claiming nonfunctional descriptive material, i.e., abstract ideas. Even when a claim that

recites a computer that solely calculates a mathematical formula or a computer disk that

solely stores a mathematical formula is not directed to the type of statutory subject

matter eligible for patent protection. The claims are not producing useful, concrete and

tangible results. See Diehr, 450 U.S. at 186 and Gottschalk v. Benson, 409 U.S. 63,

71-72 (1972).

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
>
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
>
> the prior art are such that the subject matter as a whole would have been obvious at the time the
>
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
>
> Patentability shall not be negatived by the manner in which the invention was made.

> This application currently names joint inventors. In considering patentability of the claims under 35
>
> U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly
>
> owned at the time any inventions covered therein were made absent any evidence to the contrary.
>
> Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates

of each claim that was not commonly owned at the time a later invention was made in order for the

examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior

art under 35 U.S.C. 103(a).

11.   Claims 19-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Mojsilovic et al. (US Patent 7,043,474) hereinafter Mojsilovic, in view of Jain et al. (US

Patent 5,913,205) hereinafter Jain, and in view of Essafi et al. (US Patent 6,642,929)

hereinafter Essafi.

12.   As per independent claim 19, 28 and 38, Mojsilovic teaches a method for

characterizing, annotating and determining image similarity based on semantic meaning

of images (col. 4, lines 40-42). Mojsilovic teaches the claimed, identifying one or more

predetermined feature types within each image, or a region thereof, of a plurality of

images of a training dataset (Fig. 9, col. 13, lines 64-67), Mojsilovic does not explicitly

teach visual object category. However, Jain teaches the claimed, the method of

transforming a visual object category into a model comprising parameters which define

said visual object category (Fig.2,   col. 9, lines 30-37). Thus, it would have been

obvious to one of ordinary skill in the data processing art at the time of the invention, to

have combined the teachings of the cited references because Jain's teachings would

have allowed Mojsilovic's method to provide a way to compare images in different

schemas and to compare images faster (col. 3, lines 55-57). Mojsilovic teaches the

claimed, comparing a set of images identified during said database search with said

stored model and calculating a likelihood value relating to each image based on its

correspondence with said model (Fig. 2, col. 8, lines 19-27). Mojsilovic teaches the

claimed, classifying said features in terms of descriptive variables defining one or more

characteristics of said features and a spatial relationship there between (col. 2,

lines 53-57). Mojsilovic and Jain do not teach using probability function. However,

Essafi teaches the claimed, estimating model parameters are modeled by probability

density functions (Fig. 8A-B, 9A-B, col. 7, lines 56-59). Thus, it would have been

obvious to one of ordinary skill in the data processing art at the time of the invention, to

have combined the teachings of the cited references because Essafi's teachings would

have allowed Mojsilovic's method to provide a way without splitting the image in the

same domain or ranges (col. 3, lines 5-8).

The other limitations of claim 28, calculating a likelihood value relating to each

image based on its correspondence with said model by comparing said set of images

with said model (Fig. 2, col. 8, lines 19-27); and

Mojsilovic do not explicitly teach ranking images. However, Jain teaches the claimed,

ranking said images in order of said respective likelihood values, to thereby determine

the relevance of a set of images relative to a specified visual object category (Fig.2,

col. 9, lines 60-63).

13.   As per dependent claim 20, Mojsilovic and Jain combined teach the claim 19.

Jain teaches the claimed, storing said model (Fig. 2, col. 9, lines 34-37).

14.   As per dependent claim 21, Mojsilovic teaches the claimed, each feature is
represented by one or more parameters, which parameters include its appearance
and/or geometry, its scale relative to the model, and its occlusion probability (col. 2,
lines 53-57).

15.   As per dependent claim 22, Mojsilovic and Jain do not explicitly teach estimating
the probability. However, Essafi teaches the claimed, the step of comparing an image
with said model includes identifying features of the image and estimating the probability
densities of said parameters of those features to determine a maximum likelihood
description of said image (Fig. 8A-B, 9A-B, col. 7, lines 56-59). Thus, it would have
been obvious to one of ordinary skill in the data processing art at the time of the
invention, to have combined the teachings of the cited references because Essafi's
teachings would have allowed Mojsilovic's method to provide a way without splitting the
image in the same domain or ranges (col. 3, lines 5-8).

16.   As per dependent claim 23, Mojsilovic and Jain do not teach using Gaussian
probability function. However, Essafi teaches the claimed, probability density functions
comprise Gaussian probability functions (col. 10, lines 63-65). Thus, it would have been
obvious to one of ordinary skill in the data processing art at the time of the invention, to
have combined the teachings of the cited references because Essafi's teachings would
have allowed Mojsilovic's method to provide a way without splitting the image in the
same domain or ranges (col. 3, lines 5-8).

17.   As per dependent claim 24, Mojsilovic teaches the claimed, selecting the training

dataset of images from a large dataset (database) (Fig. 1, col. 7, lines 26-30).

18.   As per dependent claim 25, Mojsilovic teaches the claimed, at least two different

models are created in respect of a set of images retrieved from said database (Fig. 8,

col. 9, lines 41-43).

19.   As per dependent claim 26, Mojsilovic and Jain combined teach the claim 1. Jain

teaches the claimed, selecting one of said at least two models as said visual object

category model (Fig. 2, col. 9, lines 60-63).

20.   As per dependent claim 27, Mojsilovic and Jain combined teaches claim 1. Jain

teaches the claimed, selecting step is performed by calculating a differential ranking

measure in respect of each model, and selecting the model having the largest

differential ranking measure (Fig.2, col. 9, lines 60-63).

21.   As per dependent claim 29-30, Mojsilovic and Jain combined teach the claim 28.

Jain teaches the claimed, set of images is retrieved by means of a database on said

specified visual object category and the input as a word or a set of words describing

said visual object category (Fig. 2, col. 9, lines 60-63).

22.   As per dependent claim 31, Mojsilovic and Jain do not explicitly teach estimating

the probability. However, Essafi teaches the claimed, the step of comparing an image

with said model includes identifying features of the image and estimating the probability

densities of said parameters of those features to determine a maximum likelihood

description of said image (Fig. 8A-B, 9A-B, col. 7, lines 56-59). Thus, it would have

been obvious to one of ordinary skill in the data processing art at the time of the

invention, to have combined the teachings of the cited references because Essafi's

teachings would have allowed Mojsilovic's method to provide a way without splitting the

image in the same domain or ranges (col. 3, lines 5-8).

23.   As per dependent claim 32, Mojsilovic teaches the claimed, comparing a set of

images retrieved from said database with said stored model and calculating a likelihood

value relating to each image based on its correspondence with said model (Fig. 2,

col. 8, lines 19-27).

24.   As per dependent claim 33, Mojsilovic and Jain combined teach the claim 1. Jain

teaches the claimed, ranking said images in order of said respective likelihood values or

retrieving further images corresponding to said specified visual object category (Fig. 2,

col. 9, lines 60-63).

25.   As per dependent claim 34, Mojsilovic and Jain combined teach the claim 28.

Jain teaches the claimed, features comprises at least two types of parts of an object

(Fig. 2, col. 9, lines 30-37).

26.   As per dependent claim 35, Mojsilovic teaches the claimed, categories include

pixel patches, curve segments, corners and texture (Fig. 15A-B, col. 23, lines 30-33).

27.   As per dependent claim 36, Mojsilovic teaches the claimed, all of the images of

said set of images are used to create the model (Fig. 8, col. 9, lines 41-43).

28.   As per dependent claim 37, Mojsilovic teaches the claimed, selecting a sub-set of

said set of images for use in creating said model (Fig. 8, col. 9, lines 41-43).

29.   As per independent claim 39, Apparatus for ranking, according to relevance,

images of a set of images retrieved from a database relative to a specified visual object

category, the being arranged and configured to a visual object category into a model

defining features of said visual object category and a spatial relationship therebetween,

store said model, compare a set of images identified during said database search with

said stored model and calculate a likelihood value relating to each image based on its

correspondence with said model, and to said images in order of said respective

likelihood values. This claim is rejected under the same rationale as claim 1.

Response to Arguments

30.   Applicant's arguments filed 5/1/2007 and 11/9/2007 have been fully considered

but they are not persuasive and details as follows:

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they

amount to a general allegation that the claims define a patentable invention

without specifically pointing out how the language of the claims patentably

distinguishes them from the references.

Conclusion

31.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time
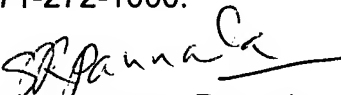
policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sathyanarayan Pannala
Primary Examiner

srp
January 2, 2008